

Notice of Allowability

Application No.

10/665,011

Examiner

Hai C. Pham

Applicant(s)

GYOUTOKU ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 07/25/06.
2. ☒ The allowed claim(s) is/are 1-7,9-14,21,22,28,33,40 and 41.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: the prior art of record does not teach the claimed structure of the organic electroluminescence element, which comprises on a substrate an anode which acts as a hole injection electrode, a cathode which acts as an electron injection electrode, a plurality of light emission layers each having a light emission region, and a charge generation layer which injects electrons into a light emission layer arranged close to said anode and holes into a light emission layer arranged close to said cathode, and said light emission layers and said charge generation layer being arranged between said anode and said cathode, and wherein the work function of said charge generation layer is configured higher than the ionization potential of said light emission layer arranged close to said anode (claim 1), wherein the electron affinity of said charge generation layer is configured lower than the electron affinity of the light emission layer arranged close to said anode, and wherein the ionization potential of said charge generation layer is configured higher than the ionization potential of the light emission layer arranged close to said cathode (claim 2), wherein the potential difference between the electron affinity of the light emission layer arranged close to said anode and the electron affinity of said charge generation layer, and the potential difference between the ionization potential of the light emission layer arranged close to said cathode and the ionization potential of said charge generation layer are both configured 0.6 eV or less (claim 3), wherein the potential difference between the ionization potential of the light emission layer arranged close to said cathode and the ionization potential of said charge generation layer is

configured 0.6 eV or less (claim 40), wherein the potential difference between the electron affinity of the light emission layer arranged close to said anode and the electron affinity of said charge generation layer is configured 0.6 eV or less (claim 41).

The prior art or record does not teach the claimed exposure unit having an organic electroluminescence element as a light source, which comprises on a substrate an anode which acts as a hole injection electrode, a cathode which acts as an electron injection electrode, a plurality of light emission layers each having a light emission region, a charge generation layer which injects electrons into a light emission layer arranged close to said anode and holes into a light emission layer arranged close to said cathode, and said light emission layers and said charge generation layer being arranged between said anode and said cathode, wherein the unit comprises a waveguide the end plane of which in the sub-scanning direction is configured as the light emerging plane, and the light which emits from said organic electroluminescence element, incident on said waveguide, and emerges from said light emerging plane as the exposure light, and wherein said waveguide comprises a core having a specified refractive index smaller than that of said light emission layers, and a clad that is formed around the outer periphery of said core and has a refractive index smaller than that of said core (claim 21), and wherein said waveguide comprises a core having a specified refractive index larger than the value obtained by subtracting 0.3 from the refractive index of said light emission layer, and a clad that is formed around the outer periphery of said core and has a refractive index smaller than that of said core (claim 22), and wherein, in said waveguide, an angle conversion unit is formed at the interface between

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said core and clad located at the opposite side of said light emission layer that converts the angle of the light impinging on said waveguide from said light emission layer to guide to said light emerging plane (claim 28), and wherein the organic electroluminescence element is applied a negative voltage between said anode and said cathode during the period of no light emission (claim 33).

Claims 4-7 and 9-14 are allowed because they are directly or indirectly dependent from claim 1 above.

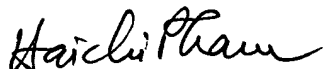
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HAI PHAM
PRIMARY EXAMINER

October 13, 2006